

I-81 Improvement Project

Purpose and Need Summary Sheet

Purpose and Need

Purpose

The purpose of this project is to improve traffic operations for vehicles using the I-81 corridor and to address needed transportation improvements.

Need

Projected growth at existing commercial/industrial complexes in Hagerstown and significant anticipated growth in outlying areas of the Hagerstown urban area justify the need to evaluate I-81. This intersection is currently experiencing failure during the peak periods with stop-and-go conditions. Traffic analysis conducted show that traffic operate at Level of Service (LOS) "F" (extremely heavy congestion) during the morning and evening peak hours. Furthermore, traffic forecasts show that these conditions will worsen with by the design year, 2020.

Reconstruction to address capacity constraints along the corridor are identified in Washington County's Comprehensive Plan and SHA's long range planning document, the Highway Needs Inventory (HNI). The HNI includes the entire I-81 corridor in Maryland for freeway reconstruction improvements.

The I-81 corridor is also one of several corridors in Western Maryland that is being investigated as part of a multi-state (Maryland, Virginia, West Virginia) Appalachian North-South Corridor Feasibility Study. The I-81 corridor will continue to be an important north-south facility promoting commerce in Western Maryland regardless of decisions made on the US 220 and US 219 corridors.

Project Limits

Existing I-81 is a fully-controlled access facility with 4 lanes (two 24-foot roadways in each direction), 10 foot outside shoulders, and a median varying from 28 feet to 64 feet in width that extends from West Virginia state line to Pennsylvania state line. The length of the corridor under study is 12.08 miles. The existing average right-of-way width is about 300 feet.

Improvements to I-81 have long been recognized by the Maryland State Highway Administration (SHA) as a future need within Washington County. The final Fiscal Year 2001-2006 Consolidated Transportation program includes funding for I-81 in the Development and Evaluation Program beginning in Fiscal Year 2002.

Recognized, as the top priority along the I-81 corridor in Maryland, by both SHA and Washington County, is the need to provide capacity improvements at the Halfway Boulevard interchange. Significant economic development has occurred and is projected to increase in the vicinity of this interchange. This development has adversely impacted the interchange in terms of traffic operations. Improvements at this location began during spring 1999 and are anticipated to be completed in fall 2001.

Safety

I-81 experienced a total of 254 reported accidents from January 1, 1997 to October 31, 2000. The average accident rate for this study section was 41 accidents for every one hundred million miles of travel (acc/100mvm). This accident rate is lower than the statewide average accident rate of 51acc/100 mvm for all

similar highways now under state maintenance. The accident experience for the study section is listed in the following table by severity, year and rate. The 3-year weighted statewide average accident rate for this type of highway is also listed for comparison purposes.

During the study period, there were seven fatal accidents. Six of these involved single vehicle collisions having the driver listed as at fault. In the seventh accident, the only one to involve a heavy truck, the driver of the vehicle that struck the truck was considered at fault. Six of the seven occurred between 11 p.m. to 8 a.m.

Traffic Data

I-81 is a heavily traveled commercial route linking Winchester, Virginia and points south to Harrisburg, Pennsylvania and points north. Approximately 28 percent of the vehicles using I-81 in Maryland are trucks. Although overall volumes are less, this percentage is approximately 35 percent at the Maryland-West Virginia state line. Average daily traffic volumes range from approximately 35,400 vehicles per day (vpd) at the West Virginia state line to 38,100 vpd at the Pennsylvania state line. Traffic volumes are greater in the metropolitan area, with approximately 61,700 vpd north of the I-70 interchange and 47,000-48,000 vpd in the vicinity of the Hagerstown interchanges.

These volumes reflect a significant increase from average daily traffic volumes experienced in the late 1980's. In 1989 overall volumes ranged from approximately 30,000 vpd to 52,000 vpd along the I-81 corridor. Rapid commercial and industrial development and the construction of numerous warehouse and outlet facilities in the Hagerstown area contribute to this increase, in particular the increases in truck traffic. Existing and planned commercial and industrial developments along I-81 will continue to increase traffic volumes considerably. More than 85,000 vehicles are projected to use I-81 in the year 2020.

PURPOSE AND NEED

Project Name & Limits: I-81 Improvement Project (From West Virginia to the Pennsylvania Line)

Having reviewed the attached Purpose and Need concurrence/comment package and the summary presented above, the following agency (by signing this document):

Federal Highway Administration Corps of Engineers
 Environmental Protection Agency Fish and Wildlife Service

Concur (without comments) Concur (w/ minor comments) Does Not Concur

Comments / Reasons for Non-Concurrence:

Note: Please do not provide "conditional" concurrence. You should either concur with the information as provided (without comments or with minor comments) or not concur until revisions are made or additional information is provided.

National Park Service MD Dept. of the Environment MD Historical Trust
 National Marine Fisheries Service MD Department of Planning Metropolitan Planning Org.
 MD Dept. of Natural Resources

Provides Comments (below or attached) Has No Comments

Comments:

Additional Information Needed:

Signature: _____

Date: _____

I-81 PROJECT PURPOSE AND NEED STATEMENT ERRATA SHEET

Agency Comment	Agency's Name	State Highway Administration's Response	Page
Under Project Location and Description, please reference the study area map and label it.	FHWA	The study map has been labeled and text has been inserted referencing it.	3
Under Need for the Project, the first paragraph which describes the typical section should be moved to Project Location and Description	FHWA	Text describing the typical section has been deleted from the Need for the Project and included in the Project Location and Description.	3
Under Need for the Project, if safety is part of the purpose, you should include information (at least a couple of sentences) on safety issues such as accidents under the Need for the Project	FHWA	Information had been provided on safety issues.	3
Under Land Use, please reference the PFA and the land use figures and label them.	FHWA	The PFA boundaries figure has been labeled and referenced under Land Use.	6
Under Commuter Service, please reference the Park and Ride Usage chart and label it.	FHWA	The Park and Ride usage chart has been labeled and referenced under Commuter Service.	8
Under Purpose of the Project, the section should include specific measures of effectiveness for the project (e.g., reduce congestion by 20%, improve the LOS from D to B, etc.)	COE	Specific measures of effectiveness will be identified as the project progresses into the next phase.	
Under Need for the Project, explain further and/or list the underlying problem(s) that you are trying to solve. You may need to pull information from other sections of the document and incorporate into this section	COE	Safety and operational problems have been included in the Need for the Project.	3

Agency Comment	Agency's Name	State Highway Administration's Response	Page
Under Roadway Conditions, include a statement about whether there are any rest areas in Maryland along this 12 mile section of I-81.	COE	There are no rest stops along I-81 in Maryland. This statement has been inserted	5
Under System Linkages/Intermodal Connectivity, explain current or proposed efforts to coordinate this project with the efforts currently underway or planned along I-81 in Virginia, West Virginia and Pennsylvania	COE	A representative from West Virginia, Virginia and Pennsylvania are included in our project team. Study efforts will be closely coordinated with them.	7
Department of Natural Resources requested that smaller wetlands be mentioned in the Purpose and Need document	DNR	Mention of the smaller wetlands have been included.	26
Maryland Department of Planning requested that we distinguish the Commenting Area of the Priority Funding Area on the map.	MDP	The Commenting Area of the Priority Funding Area has been distinguished on the map.	Sheet Following Page 6

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I-81 Improvement Project

*(From West Virginia to the Pennsylvania Line)
Washington County, Maryland*

PURPOSE AND NEED STATEMENT

October 2001

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1. Project Location and Description

Interstate 81 serves as a major north-south highway and regional connector linking Maryland, Pennsylvania, Virginia and West Virginia. The study area, shown in Figure 1, extends from the West Virginia line in the south, at the Potomac River, north to the Pennsylvania line.

I-81 is classified as an 'Interstate' on the Federal Functional Classification System and a Principal Arterial on the State Functional Classification System. It is also part of the State Primary Highway System. The State Primary Highway System serves Maryland in the same manner that the nation is served by the Federal Interstate System. According to the Maryland Department of Transportation (MDOT) policy, the 1,300-mile Primary System should have the maximum practical degree of access control to provide the highest level of motorist safety. Existing I-81 is a fully controlled access facility with nine interchanges within the short stretch of the 12-miles in Washington County, Maryland. I-81 consists of four lanes with two 24-foot roadways, 10 feet outside shoulders, and a varying median ranging from 24 feet to 64 feet in width.

2. Purpose of the Project

The purpose of the I-81 project is to improve safety and capacity along the 12-mile stretch of I-81 in Washington County, Maryland.

Without improvement it will be difficult to maintain future acceptable levels-of-service and safety along the highway. Recent and planned commercial and industrial development will contribute to deteriorating traffic operations. Currently safety is being compromised by the high percentage of truck traffic and substandard interchange design and poor spacing between interchanges.

The study will address vehicular capacity needs to improve level-of-service, making the roadway safer for all motorists travelling I-81. This would also increase mobility while expanding and maintaining economic development opportunities in Hagerstown and Washington County.

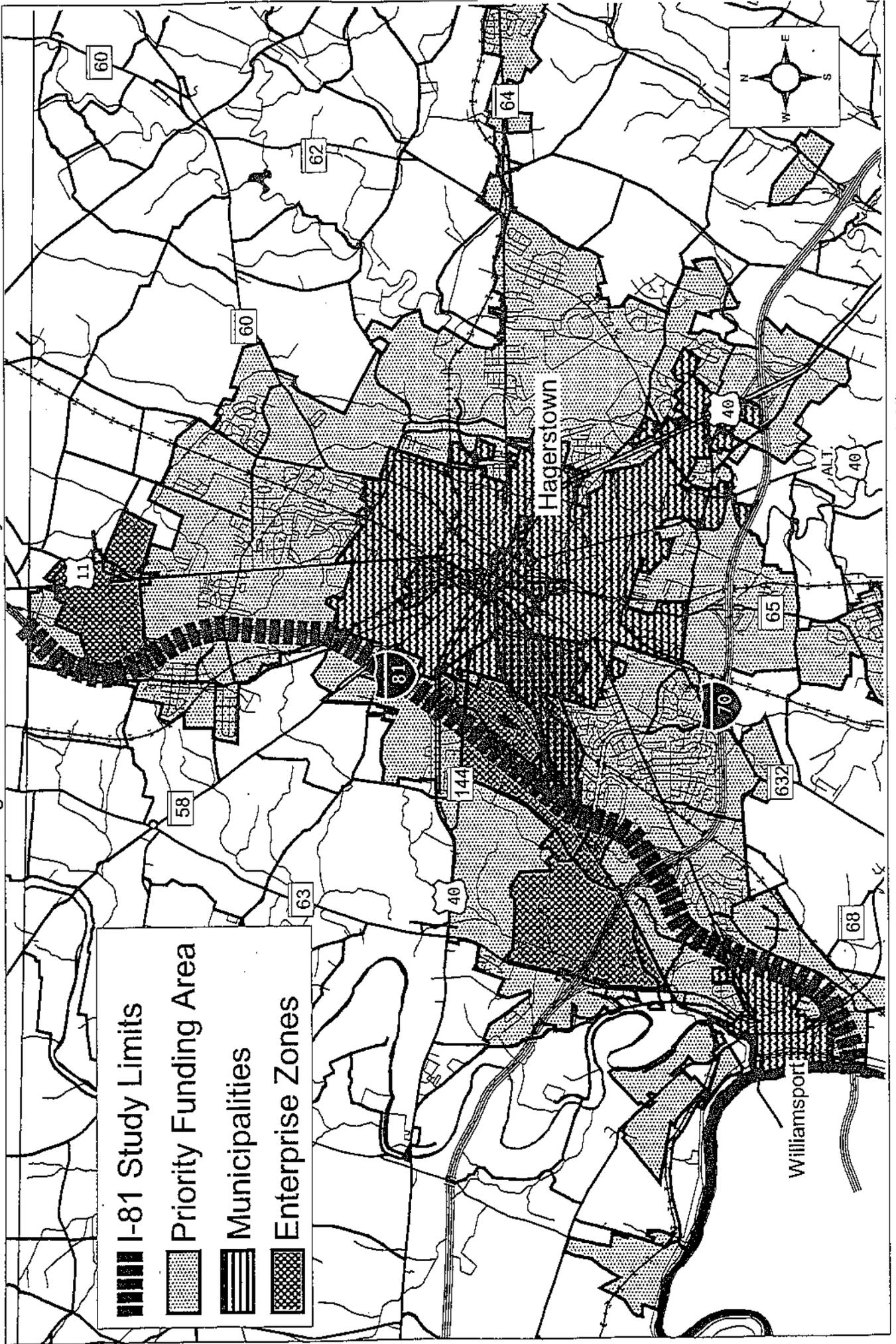
3. Need for the Project

The level-of-service along I-81 has deteriorated with time. Since I-81 is located in Washington County's designated Growth Area and passes through the State's Smart Growth Priority Funding Area (PFA), economic development activities along the corridor has increased tremendously in recent years. Currently, I-81 operates at Level-of-Service (LOS) "A" to "D". Traffic conditions will worsen with the projected increase in traffic volumes if there are no improvements to I-81.

The 12-mile segment of I-81 had a significantly high fatal accident rate compared to similar roadways within Maryland. The weaving problem, which exists at the interchanges, along with the heavy truck volumes has contributed to several rear end and sideswipe crashes.

Figure 1 I-81 Improvement Project

I-81 from the West Virginia State Line to the Pennsylvania State Line



Washington County

2 0 2 4 Miles

1:85,000

4. Traffic

Interstate 81 is a heavily traveled commercial route linking Winchester, Virginia and points south to Harrisburg, Pennsylvania and points north. In 1989 overall volumes ranged from approximately 30,000 to 50,000 vehicles per day (vpd) along the I-81 corridor. Now, a decade later, average daily traffic volumes on I-81 range from 41,275 vpd between the West Virginia Line and MD 63 to over 62,100 vpd between Halfway Boulevard and US 40. Traffic volumes in the Hagerstown urbanized area range from 53,000 to 62,100 vpd (refer to Appendix B). These current volumes reflect a significant increase from average daily traffic volumes experienced in the late 1980's.

More than 85,000 vehicles-per-day (vpd) are projected to use I-81 by the year 2020. This tremendous increase in traffic volumes will adversely impact the operations of the area roadway system. The level of service at many interchanges along I-81 will worsen, as will sections of the mainline roadway. This trend will be more obvious and occur more rapidly in the Hagerstown area. Safety concerns will increase with the subsequently higher traffic volumes.

Rapid commercial and industrial development including the construction of numerous warehouses and outlet facilities in the Hagerstown area contribute to this increase in traffic, particularly truck traffic. Approximately 34 percent of the vehicles using I-81 in Maryland are trucks. Although overall volumes are less, the percentage of trucks is approximately 39 percent at the Maryland-West Virginia state line.

Despite the heavy amount of truck traffic on the Interstate there is presently no truck weigh station facility. The I-81 corridor is now being included in "Travel Shenandoah," a three state motorist information and alert intelligent transportation system.

I-81 currently operates at Level-of-Service (LOS) "A" to "D". If there are no improvements to this roadway other than regular maintenance and completion of the I-81/Halfway Boulevard interchange now under construction, the LOS for year 2025 will range from "A" through "F".

The majority of the I-81 LOS operational problems consist of weaving, merge and diverge problems associated with ramp volumes. The ramp volumes for the most part would not be a problem except for the many substandard ramps and geometric conditions at the interchanges along I-81 as well as the high volume of truck traffic.

Since the truck percentage on I-81 is one of the highest in Maryland, any modifications to I-81 or its interchanges should take into account of the fact that large trucks need long acceleration and deceleration lanes and adequate turning radii to make merging and diverging movements safely.

5. Safety

During a three-year period from 1997 to 2000, a total of 254 accidents occurred along I-81 within the study area. The rate for truck related accidents of 15 accidents per 100 million vehicle-miles (acc/100 mvm) was significantly higher than the statewide average rate for similar roadways of 10 acc/100 mvm.

The fatal accident rate was also significantly higher than the statewide average at a 1.1 acc/100 mvm with 7 reported accidents. Six of the 7 fatal accidents involved single vehicle collisions where drivers went off I-81 either onto the right shoulder or into the median. Alcohol and surface conditions were not considered factors in any of these accidents. Time of day was a factor however, in that 6 of the 7 fatalities occurred between 11PM to 8AM. In at least 2 of these fatal accidents the driver is suspected of having fallen asleep prior to the crash. Heavy trucks were not considered at fault in any of the fatal accidents (refer to Appendix A).

Moreover, the accident rates for several sections of the highway exceeded the statewide average of 51 acc/100 mvm traveled based on similar type of roadway. The section from I-70 to Halfway Boulevard has an average rate of 67 acc/100mvm and the segment from US 40 to MD 58 has an average of 60 acc/100mvm. The most numerous type of accident was the fixed object (96 of 254). Over 40% of these were at night and nearly 40% of all fixed object accidents were in wet or snow/ice surface conditions.

Weave problems exist at the I-70, Halfway Boulevard, US 40 and MD 58 interchanges, resulting in a high number of rear-end truck accidents and some sideswipe crashes. The heavy truck weaving problems occurred more frequently in the southbound direction of travel.

The portion of I-81 in Maryland is only 12 miles in length, but is an important route for heavy truck traffic. The degree of truck traffic is reflected in the involvement of trucks in the accident totals. Nearly 40% of all reported accidents on I-81 (95 of 254) during the study period had heavy truck involvement. Certain collision types such as rear end and sideswipe are heavily linked to heavy truck traffic problems. The combined total of rear end and sideswipe accidents on I-81 during the study was 92 with heavy trucks being involved in over 60% (58) of those accidents. There are heavy truck accident problems in interchange weaving areas especially on southbound I-81 where clusters of accidents are evident. While accidents from all vehicles were split 50-50 between northbound and southbound I-81, nearly 60% of all heavy truck collisions occurred on southbound I-81. Moreover, the truck related accidents were significantly higher than the statewide average rates for similar types of roadways.

Overall, the total accident rate for I-81 was not significantly high; however, there were several problems in the interchange areas involving heavy trucks. With the expected increase in traffic, the heavy truck problem will not improve in the future.

6. Roadway Conditions

Interstate 81 in Maryland was fully open to traffic in 1967, 10 years after its construction began. Currently, I-81 has 4 lanes with two 24-foot roadways in each direction, 10 foot outside shoulders, and a median varying from 24 feet to 64 feet in width. The existing average right-of-way width is about 300 feet. There are no rest stops along I-81 in Maryland.

The two bridges over the Potomac River, the bridge over MD 68/63 and two bridges over the CSX Transportation to the north of Halfway Boulevard are only wide enough to accommodate the existing lanes with no shoulders.

Priority Funding Area (PFA) Map

I-81 from West Virginia State Line to Pennsylvania State Line

Figure 2

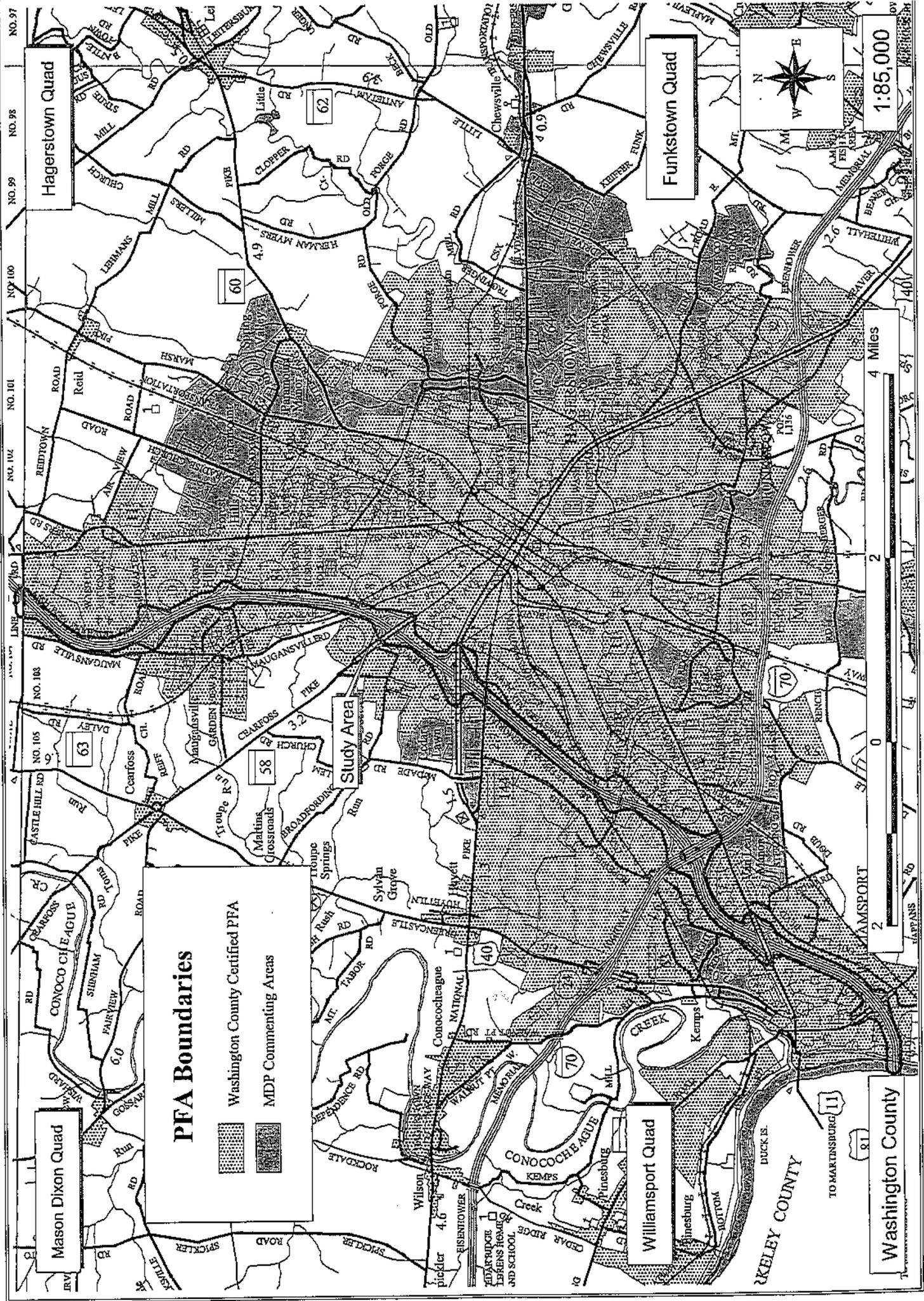
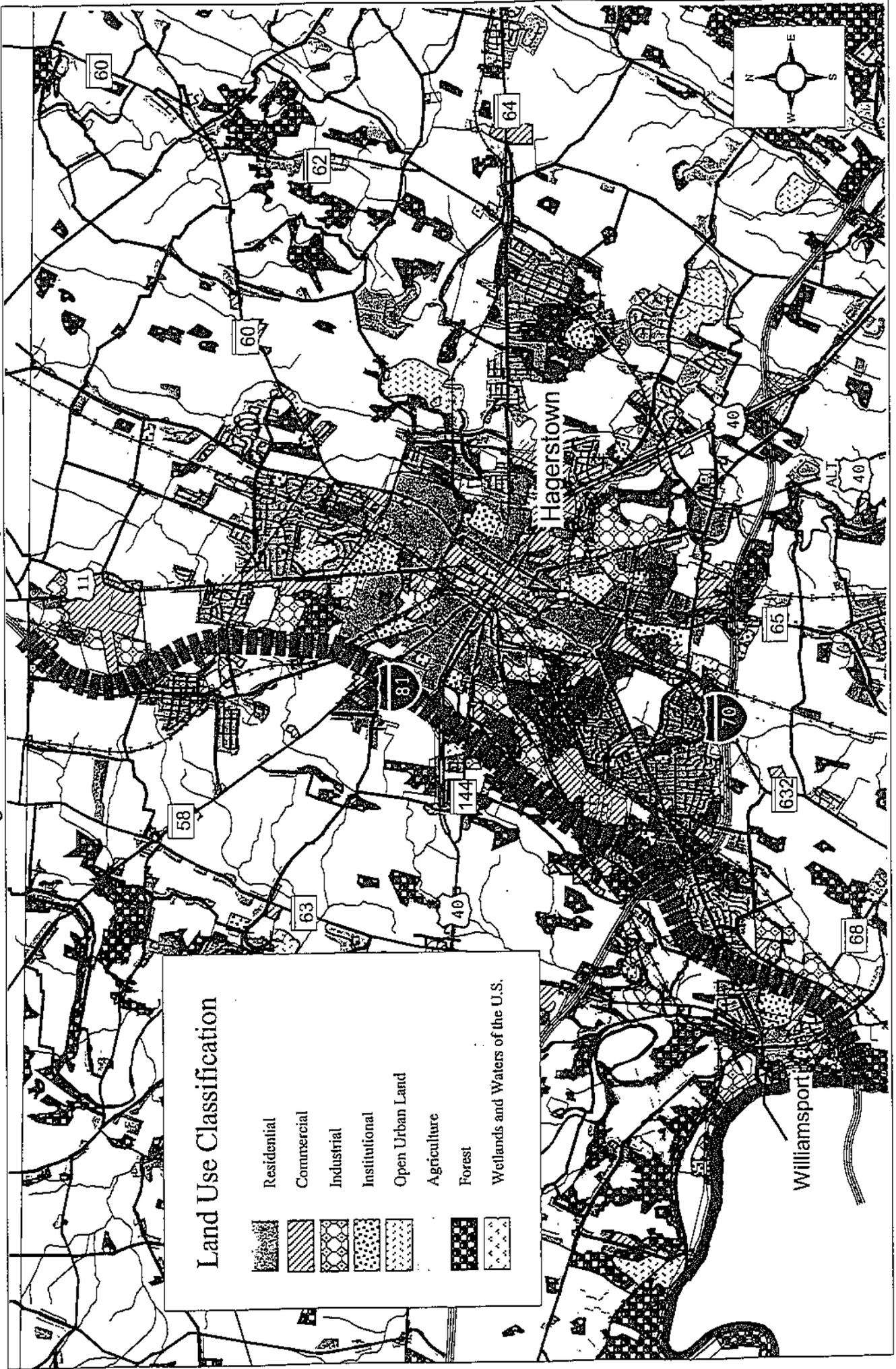


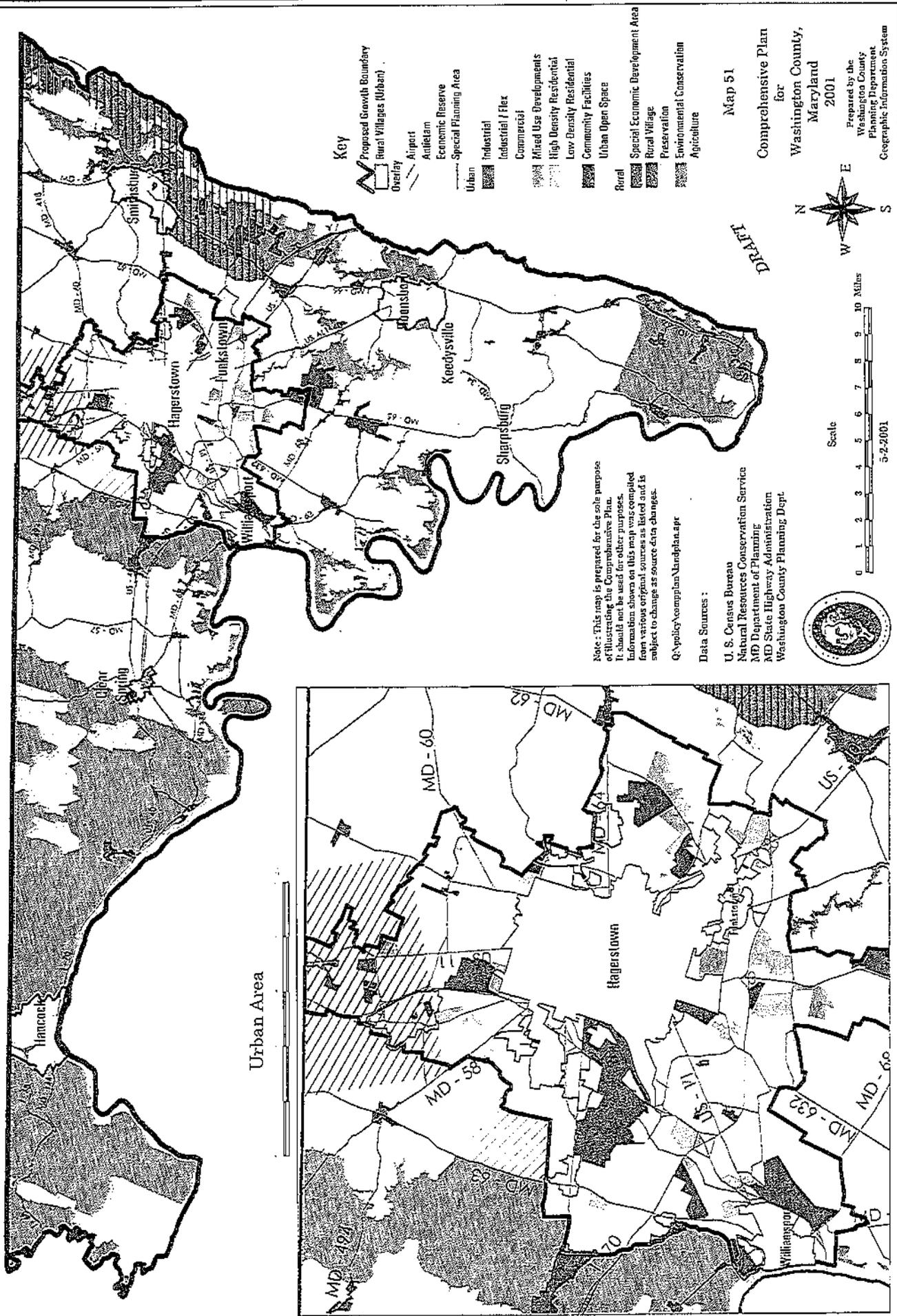
Figure 3 Existing Land Use

I-81 from the West Virginia State Line to the Pennsylvania State Line



Land Use Plan

Figure 4



Most of the large signs on I-81 are in need of replacement due to age and failing sheeting. Also, signage can be a problem in the area of the Hagerstown Regional Airport since according to the Federal Aviation Administration's regulations, no large signs or structures can be placed near the approach to the airport's vicinity. At the I-81/I-70 interchange, high mast lighting was removed several years ago but was never reinstalled. Lighting on the interstate assists night visibility at the interchange, thus improving safety. Two problems have been identified with the median of I-81. One of the problems involves large trees in the median that have caused accidents that result in fatalities to motorists striking them. The other problem is the inadequate parallel structure barrier protection, which are median openings between bridges, sometimes called "elephant traps".

Sight distances are adequate for most segments of I-81, although problems exist on some of the ramps due to overgrowth of trees and brush. Most interchanges along I-81 have adequate acceleration/deceleration lanes, although some of them having substandard lengths and geometry.

With 9 interchanges in the relatively short 12-mile segment of I-81, spacing is problematic and contributes to increased congestion and safety concerns, especially with large trucks. For example, the Maugansville Road interchange is only approximately 0.3 of a mile from the MD 58 interchange.

7. Land Use

The I-81 corridor in Maryland contains primarily commercial/industrial land use along the entire length. It is located west of the City of Hagerstown and intersects I-70 approximately one mile south of the city corporate limits. There are currently nine interchanges along I-81 providing access to Washington County, including the City of Hagerstown and the Town of Williamsport. Many major employers are located around the interchanges, including CitiCorp, First Data, Staples, Tru Serv, Phoenix Color and Mack Trucks and the Hagerstown Regional Airport. The existing and proposed land uses are shown in Figure 3 and 4 respectively.

I-81 is located in Washington County's designated Growth Area and passes through the State's Smart Growth Priority Funding Area (PFA). Priority Funding Areas, shown in Figure 2, are delineated by the County and certified by the State. The PFA designation allows State funding of infrastructure improvements to support planned development.

In addition to being part of the PFA, I-81 has three Enterprise Zones within the corridor. Enterprise zones are state-designated areas that provide local and state tax incentives for new or expanding companies so that the county can promote growth of its industrial and commercial base. These industries depend on the close proximity to the Interstate system.

The Interstate 81 Enterprise Zone extends along the I-81 corridor from US 40 southeast to MD 63. The I-81 Enterprise Zone includes the I-70/I-81 Interstate Industrial Park, Crossroads Corporate Center, Gateway Business Park, Hunter's Green Business Center, Hunt Ridge Business Park, and the eastern portion of Newgate Industrial Park.

East of I-81 is the Hagerstown Enterprise Zone which is approximately 1,400 acres. The Hagerstown Enterprise Zone includes the Washington County Business Park, CSX Valley Park, and the City of Hagerstown Business Park.

The Hagerstown Regional Airport Enterprise Zone is located at the northern segment of the I-81 corridor. This 700-acre zone supports the Topflight Airpark, the Washington County Business Airpark, and several other commercial properties and airport-related businesses.

There are also two major retail centers this area. The Valley Mall is located east of the Halfway Boulevard interchange and the Hagerstown Prime Outlet Center is located in close proximity to I-81, just east along I-70. Recently the Centre at Hagerstown, a 750,000 square foot regional shopping center, was constructed on the west side of I-81 between US 40 and MD 58. Two industrial parks are being built within the study area. One of the industrial park has a parking lot with a capacity 500 large trucks/vehicles while the other one will include a truck stop with 63 fueling stations.

8. System Linkages/Intermodal Connectivity

I-81 supports intermodal activity throughout the Washington County area. The Hagerstown Regional Airport is located off of Showalter Road, between I-81 and US 11. The airport provides daily passenger service by US Airways Express to a variety of destinations connecting with Baltimore-Washington International Airport (BWI), Washington-Dulles International (IAD) and Ronald Reagan Washington National airports, all of which are located within a 70-mile radius. Recently Pan Am has begun providing service to the Hagerstown Regional Airport with flights to BWI Airport. In addition to providing passenger services, the airport is the focal point of several aviation-oriented businesses on its premises. In the near future, the airport is looking at potential expansion to ready itself to accommodate larger aircraft.

The "Hub City" of Hagerstown has extensive rail service. The three rail lines operating in Washington County are CSX, Norfolk Southern and the Winchester and Western rail lines, all of which roughly parallel the major road corridors, with Potomac River crossings at Williamsport and Sharpsburg. Although there are no major intermodal facilities located in Washington County, the Norfolk Southern's "Piedmont Route" travels along I-81 to Harrisburg, PA, with a stop just south of the City of Hagerstown. It carries freight between the Southeast region of the US to the Philadelphia area. Amtrak and MARC train commuter service is available in Martinsburg, West Virginia off, of I-81, south of the Maryland line.

I-81 is the main alternative to I-95 for north-south traffic travelling along the Eastern United States. Maryland, Virginia, West Virginia and Pennsylvania all have varying degrees of capacity improvements either scheduled or under construction. A Virginia Study concluded that in most rural sections there would be at least 6 lanes needed to increase capacity and ensure safety of the highway.

The activities underway in Virginia and West Virginia provide further justification for Maryland to initiate a project planning study for I-81 improvements. West Virginia's plans to widen I-81 to 6 lanes up to the city of Falling Waters in West Virginia near Maryland line by Year 2005 that makes coordination between the two states a necessity. It is expected that an upgraded I-81 south of Maryland will attract additional traffic, in

particular truck volumes, to the point where additional capacity constraints will be experienced in Maryland. An improved I-81 will enhance the north-south commercial route linking the Shenandoah and Cumberland valleys.

9. Commuter Services

There is currently one 17-space commuter park and ride site east of I-81 at the MD 58 interchange. There are 4 additional sites just south of Hagerstown along I-70. These park and ride sites are I-70 at MD 632, I-70 at MD 66, and 2 sites at I-70 at MD 65, one of which is serviced by MTA bus service route 991. Table 1 summarizes the park and ride usage for each site within the study area. The MTA's bus route 991 transports commuters from the park and ride lot to the Washington Metro Area Transit Authority's, Shady Grove Metro Station. Although there is potential for additional transit and commuter options, I-81 is an interstate, thus prohibiting bicycle and pedestrian use.

Despite the fact that this is the only bus service that MTA provides for the area, there is a local bus service that connects points within the I-81 corridor. The county's local bus service, the Washington County Commuter, transports riders to and from several locations including, the Valley Mall, Long Meadow Shopping Center, Williamsport, Maugansville, Hagerstown Junior College, Salem Avenue, Funkstown and Smithsburg. Greyhound Bus Lines also provides a daily round trip service beginning at Washington D.C.'s Union Station with stops in Frederick and Hagerstown, before connecting at Pittsburgh. From Pittsburgh Amtrak's "Pennsylvania" line operates to and from Chicago.

10. Background

The improvement of I-81 to address capacity and safety issues is a priority on the State and local level of government. It has received increasingly stronger support over the last several years by past and present elected officials, county staff, concerned citizens and many business interests in the area. In fact, it is identified as the number one transportation priority for Washington County in the Washington County Comprehensive Plan as well as the Hagerstown/Eastern Panhandle MPO's Long Range Transportation Plan.

Reconstruction to address capacity constraints along the entire stretch of I-81 in Maryland, is also identified in SHA's long range planning document, the Highway Needs Inventory (HNI). The Highway Needs Inventory is a technical reference and planning document which identifies highway improvements needed to serve existing and projected service, safety and structural problems that entail major construction or reconstruction. It also addresses economic development and master plan considerations. The HNI assumes an improvement of 6 lanes (two 36-foot roadways) with 10 foot outside shoulders.

The need for I-81 improvements is also included in the most recent Maryland Transportation Plan (MTP) published in 1999. The MTP, similar to the SHA's HNI, is the long-range document that sets forth MDOT's vision of transportation initiatives statewide for the future. It establishes goals and policies that guide transportation decision-making over the next 20 years. The goals and policies are focused on addressing six key elements. The I-81 improvement project would address three of these elements; improving community mobility, freight transportation and regional

TABLE 1
Washington County Park and Ride Annual Usage Inventory

County	Site Name/Location	Spaces	Spring 2000		Fall 2001		Spring 2001		Annual	
			#	%	#	%	#	%	#	%
W	US 40 Alternate @ MD 67	69	23	33%	30	43%	20	29%	25	36%
W	I-70 @ US 40	68	46	68%	55	81%	57	84%	56	82%
W	I-70 @ MD 65 (SHA lot)	82	54	66%	57	70%	49	60%	53	65%
W	I-70 @ MD 65 (MVA lot)	168	46	27%	57	34%	51	30%	54	32%
W	I-70 @ MD 66	155	92	59%	101	65%	99	64%	100	65%
W	I-70 MD 632	109	8	7%	11	10%	9	8%	10	9%
W	MD 144 @ Center Street (Hanco	49	36	73%	38	78%	28	57%	33	67%
W	I-81 @ MD 58	17	14	82%	15	88%	9	53%	12	71%

transportation. Economic development activities are also included in the Maryland Transportation Plan in the vicinity of I-81.

In order to accommodate increased traffic, there is already a construction project underway at I-81/Halfway Boulevard interchange to convert it to a full-diamond configuration. Significant economic development has occurred and is projected to increase in the Halfway area. Improvements at this location began in the Spring 1999 and are anticipated to be completed in Fall 2001 at a cost of approximately \$15.5 million.

As the most highly traveled economic development corridor in Western Maryland, I-81 is experiencing increasing operational problems that justify advancing the corridor ahead of other corridor improvements in the region. The I-81 corridor is one of several corridors in Western Maryland that is being investigated as part of a multi-state (Maryland, Virginia, West Virginia and Pennsylvania) Appalachian North-South Corridor Study.

In addition to broad support in Maryland, there is also backing from the I-81 Quad State Forum, advocating capacity improvements throughout the entire corridor within the four state area of Maryland, Pennsylvania, Virginia and West Virginia. Several years ago, Virginia initiated conceptual studies for its entire 300+ miles. These preliminary studies focused on determining what was needed from a capacity/safety perspective and how/when widening could be accomplished. The majority of the studies were completed in 1998. Several sections are now funded in Virginia's Six Year Highway Improvement Program for additional activities, including detailed engineering, right-of-way acquisition and construction.

West Virginia is focusing its efforts to widen I-81 from four lanes to six lanes. I-81 widening improvements have been completed for most of the portion from the Virginia line north to Martinsburg with the anticipation of widening I-81 from Martinsburg to the Maryland State line.

On May 16, 2001 Pennsylvania announced a commitment to widen I-81 to six lanes from the Maryland line to PA 581. The project will encompass 77 miles. The Pennsylvania Department of Transportation will advertise for consultants to conduct a feasibility and preliminary engineering study as the first phase to initiate the project.

The improvements to mainline I-81 are key to the success of the local economy of Washington County, enabling the County to maintain growth. The local economy is also affected at a larger scale by the regional economy and the improvements that have been or will be made in the bordering State of West Virginia and the Commonwealths of Pennsylvania and Virginia. Without coordinated I-81 improvements inter-regional trade will be inhibited thus discouraging future investment in Washington County.

11. Conclusion

I-81 is a major north-south corridor that connects Maryland, Pennsylvania, Virginia and West Virginia, and its limits in Maryland extend from West Virginia state line to Pennsylvania state line.

I-81 is located in Washington County's designated Growth Area and passes through the State's Smart Growth Priority Funding Area (PFA). Rapid commercial and industrial

development including the construction of numerous warehouses and outlet facilities in the Hagerstown area have contributed to the increase in traffic, particularly truck traffic. Approximately 34 percent of vehicles using I-81 in Maryland are trucks, one of the highest in the state.

The level-of-service (LOS) currently ranges from "A" to "D". The majority of the LOS operational problems consist of weaving, merge and diverge problems associated with substandard ramps and the deficient geometric conditions at the interchanges along I-81.

More than 85,000 vehicles-per-day (vpd) are projected to use I-81 by the year 2020. This tremendous increase in traffic volumes will adversely impact the operations of I-81 corridor. If no improvements are made to I-81, traffic conditions will worsen with the projected increase in traffic volumes.

In addition, during a three-year study period from 1997 to 2000, the rates for truck related accidents and fatal accidents were significantly higher than the statewide average.

The improvement of I-81 to address capacity and safety issues is a priority for state and local governments, and has a strong support among elected officials, citizens and local businesses. It is also identified as the number one transportation priority for Washington County as well as local master plans.

Therefore, the goal of this study is to improve safety and capacity and reduce congestion along I-81, thereby alleviating traffic operation issues especially the heavy truck traffic and safety concerns.

APPENDIX A
Safety and Accident Data

I-81 Improvement Project Safety and Accident Data

I-81 from the West Virginia State Line to the Pennsylvania State Line experienced a total of 254 reported accidents from January 1, 1997 to October 31, 2000. The average accident rate for this study section was 41 accidents for every one hundred million miles of travel (acc/100 mvm). This accident rate is lower than the statewide average accident rate of 51 acc/100 mvm for all similar highways now under state maintenance. The accident experience for the study section is listed in Table 1 by severity, year and rate. The 3-year weighted statewide average accident rate for this type highway design is also listed for comparison purposes.

Table 1

Severity	1998	1999	2000	Total	Rate/100 mvm	Statewide Avg. Rate
Fatal	3	0	4	7	1.1*	0.4
Injury	44	42	39	125	20	22
Prop. Dam.	42	45	35	122	20	30
Total	89	87	78	254	41	52

*Significantly higher than the statewide rate

SPECIAL NOTE: - all ADTS were supplied by OPPE

During the study period there were seven fatal accidents. Six of these involved single vehicle collisions having the driver listed as at fault. In the seventh accident, the only one to involve a heavy truck, the driver of the vehicle that struck the truck was considered at fault. Six of the seven occurred between 11PM to 8AM. Five of the seven accidents were close enough to be grouped into two geographic clusters.

The first cluster involved three fatal accidents within a one-half mile radius of Exit 2 at US 11. The first accident (5/2/98, 11:15 PM) was on SB I-81 0.3 mile south of Exit 2. A southbound vehicle travelling at a high rate of speed swerved to avoid another vehicle, lost control and skidded sideways off the right shoulder into a tree. One passenger was killed. The second fatal accident (5/2/98, 11:54 PM) occurred when a northbound driver on I-81 struck and killed a member of the Fire/Police Unit involved in traffic control operations of a previous fatal accident. The third accident (8/27/00, 2:20 AM) involved a southbound vehicle one-half mile north of Exit 2. The vehicle entered the median, the driver overcorrected, the vehicle reentered southbound I-81 and went off onto the right shoulder. The vehicle then went into a gully, became airborne and struck a tree, killing the driver. In none of these accidents was alcohol or weather conditions considered a factor.

The second cluster consisted of two accidents between Exit 8-Maugansville Road, and Exit 9-Maugans Avenue. In the first accident (4/10/00, 10:08 AM) 0.8 mile south of Exit 9, a southbound vehicle went off I-81 onto the median and struck a tree. The driver, deceased as a result of the accident, was noted as possibly falling asleep prior to the accident because of the lack of any indications of vehicle braking. The second accident (10/21/00, 5:00 AM) 0.6 mile south of Exit 9 (Maugans Ave) involved a southbound vehicle going off I-81 onto the right shoulder, then down an embankment subsequently rolling over several times. The driver who was not wearing a seat belt was killed. No

other contributing factor was noted. As in the first cluster, neither the use of alcohol or weather conditions was thought to be contributing factors.

The sixth fatal accident (2/3/98, 5:10 AM) was on I-81 southbound 0.3 mile south of Exit 10 (Showalter Rd). A single vehicle left I-81 going into the median struck several trees, thus killing the driver. The police accident report noted the driver as having fallen asleep prior to the crash. No other contributing factors were cited. The seventh fatal accident (6/24/00, 8:48 AM) was the only one involving multiple vehicles. A northbound passenger vehicle that had drifted out of the slow lane struck a parked tractor-trailer on the right shoulder of northbound I-81, approximately 0.5 miles south of the Pennsylvania State line. The vehicle subsequently spun out, went across I-81 and ended up in the median strip, killing a passenger. The uses of alcohol or weather conditions were not thought to be factors in the accident.

The key collision types within the study area are compared in Table 2 to their respective statewide average accident rates for highways of similar design.

Table 2

Collision Type Or Category	Number of Accidents 1998-00	Accident Rate per 100 mvm	Statewide Average Rate
Rear End	60	10	20
Sideswipe	32	5	7
Fixed Object	96	15	14
Truck Related	95	15*	10

*Significantly higher than the statewide rate

Three collision types, rear end, sideswipe and fixed object, accounted for nearly 75% (188 of 254) of all the accidents in the study section.

Rear end accidents appear to be strongly associated with heavy truck traffic on I-81. Over 60% (37) of all rear end collisions experienced heavy truck involvement. Of the 60 reported rear end accidents on I-81, 29 were northbound while 31 rear end accidents were southbound.

There were three major clusters of northbound rear ends. The first was at Exit 2 at US 11 with 6 reported accidents within a 0.2-mile segment. Of these, 5 rear end accidents involved heavy trucks. The accident cluster between Exits 9 (Maugans Ave) and 10 (Showalter Rd) approximately 1 mile in length, also included heavy truck involvement in 4 of 5 of the northbound rear ends. However, the largest northbound rear end cluster, a 1/2 mile segment in the vicinity of Exit 5 (Halfway Blvd.) had heavy truck involvement in only 2 of its 8 accidents. This section was the only one of the three to have a time of day pattern; half (4) of the accidents occurred between 3 and 5 PM.

Southbound rear end accidents had two major clusters. The first was a 1.2 mile section in the area of Exits 4 (I-70) and 5 (Halfway Blvd) that included 11 southbound rear end accidents. Of these, 7 accidents were heavy truck related. The other cluster was a 1 mile segment in the vicinity of Exits 6 (US 40) and 7 (MD 58). This section also had 11 reported accidents. Heavy trucks were involved in 9 of the 11 rear end collisions. Heavy trucks as a whole appear to be having problems in the weaving areas around Interchanges where most of the accident clusters are located. Nearly 40% (4) of the rear end accidents occurred under wet or icy conditions in this section.

Of the 32 sideswipe accidents that occurred during the study period, 21 involved heavy trucks. The heavy truck problems especially in interchange weaving areas were more evident on southbound I-81. There were more than twice as many heavy truck related sideswipe accidents on southbound I-81 than northbound (15 sideswipe collisions Vs 6 sideswipe collisions northbound). Nearly all of the total southbound sideswipes involved a heavy truck (15 of 18) while less than half did on northbound I-81 (6 of 14). The greatest concentration of southbound sideswipes (6 of 18) was in a 1 mile section between Exit 6 (US 40) and 7 (MD 58) area. Almost all of these (5 of 6) were heavy truck related. Heavy truck involvement in northbound sideswipe accidents was not as great. The only notable northbound cluster was in the vicinity of Exit 4 (I-70). The 0.5 mile segment had no heavy truck involvement.

There were 96 reported fixed object accidents during the study period. This included 6 fatal accidents (see detailed description above). While heavy truck involvement was not an important factor in fixed object accidents on I-81 (only 11 of 96), there were several notable patterns. Over 40% (42) of all fixed object accidents on I-81 occurred at night and nearly 40% (35) were under wet or snow/ice conditions. The northbound/southbound split was nearly equal (51/45). There were two clusters on northbound I-81 in the vicinity of Exit 4 (I-70) and Exit 10 (Showalter Rd). These areas contained nearly 40% (19) of the northbound fixed objects. Over half (10) of the accidents in these two clusters occurred at night. On southbound I-81 there were two major clusters of fixed object accidents. The first grouping included 7 accidents in a 1 mile stretch in the Exit 7 (MD 58)/ Exit 8 (Maugansville Rd) area. Over half of these accidents (4) were wet surface related. The second cluster, 2.5 miles in length extended from Exit 2 (US 11) to Exit 5 (Halfway Blvd). This section experienced 21 fixed object accidents in the study period. Over half (11) of these were wet surface or snow related. Also a factor in this area, more than 50% of the fixed object accidents (11) occurred at night.

Heavy truck related accidents were significantly high on I-81 during the study period. As seen in the previous descriptions, over 60% (58 of 95) of the heavy truck accidents were either rear end or sideswipes. Weaving areas at Interchanges on I-81 appear to be a problem since most of the accident clusters with heavy truck involvement (see above descriptions) were located in these areas. Day of week and time of day show definite patterns for heavy trucks. Over 40% of the reported truck accidents occurred on Tuesday (20) and Wednesday (21). Conversely, the combined accident total for Saturday and Sunday was only 13. The peak accident hours seemed to mimic AM/PM drive time but also extends beyond it. There were 20 heavy truck related accidents between 7AM to 10AM and another 26 from 5PM to 9PM. Poor surface conditions (19) and alcohol usage (5) do not appear to be important factors in heavy truck collisions. There is a nighttime accident pattern however. Almost 40% of all heavy truck accidents on I-81 occurred at night (36). There was a pronounced North/South accident split with heavy trucks. Nearly 60% were on southbound I-81, while the North/South split for all reported accidents was about 50-50 (128 northbound/126 southbound). This indicates that heavy trucks are having greater problems in the southbound I-81 lanes. There were two major heavy truck accident clusters on southbound I-81. The first was in the Exits 6-7 (US 40-MD 58) area. In this section there were 17 reported accidents that involved heavy trucks. Of the 17, 14 were either rear end or sideswipe collisions, an indication of congestion related weaving problems. Time of day was also a factor with over 1/3rd (6) of the accidents occurring between 7AM to 10AM. The second southbound cluster was in the Exits 4/5 (I-70/

Halfway Blvd) area. More than half of the heavy truck related accidents in this section (11 of 20) were either rear ends or sideswipe accidents.

There were no priority Candidate safety Improvement Locations in the study section (Note: The 2000 CSIL listing is not available at this time).

The following table is a summary of the individual sections requested along I-81. Please note that the rates may be subject to distortion in any area with a short section length (usually less than 1 mile). The accident rates however, are still useful for general comparisons.

Table 3

Section	1998	1999	2000	Total	Rate /100mvm	Statewide Avg. Rate
W.Va. Line to MD 63/68	9	2	7	18	43	40
MD 63/MD 68 to I-70	25	26	14	65	49	53
I-70 to Halfway Blvd	13	10	14	37	67	53
Halfway Blvd to US 40	10	12	13	35	25	53
US 40 to MD 58	10	15	5	30	60	53
MD 58 to Maugansville Rd	3	3	3	9	45	53
Maugansville Rd to Maugans Ave	6	8	11	25	31	53
Maugans Ave to Showalter Rd	7	2	8	17	48	53
Showalter Rd to PA State Line	6	9	3	18	27	53

SPECIAL NOTE: - all ADTS were supplied by OPPE

APPENDIX B
Traffic Volumes and
Level of Service

55050
90450

7000
11475

3825
6275

20000
32800

US 11

US 11

17100
28050

↑
TO PA

1725
2825

2000
3275

I - 81

47950
78800

2000 ADT NO-BUILD
2025 ADT NO-BUILD

3200
5150

3900
6400

5400
8850

MD 63/68

MD 63/68

7950
13050

1100
1800

2950
4850

I - 81

44900
73800

↓
TO WVA

I-81

STUDY

SKETCH "1"

$\frac{57800}{82900}$

$\frac{4625}{14300}$

$\frac{9200}{16900}$

↑ TO PA

$\frac{16150}{50000}$

HALFWAY BLVD

HALFWAY BLVD

$\frac{22000}{50900}$

$\frac{8425}{26000}$

$\frac{9700}{24300}$

I-81
STUDY

I-81

$\frac{62100}{102000}$

$\frac{2000 \text{ ADT NO-BUILD}}{2025 \text{ ADT NO-BUILD}}$

$\frac{10125}{16600}$

$\frac{14350}{23550}$

$\frac{40800}{66925}$

I-70

I-70

$\frac{51000}{83675}$

$\frac{5725}{9400}$

$\frac{11700}{19200}$

I-81

$\frac{55050}{90450}$

↓ TO WVA

SKETCH "2"

53350
75575

↑ TO PA

675
1100

1325
2175

7000
11475

MD 58

MD 58

8075
13250

2250
3700

2675
4400

I-81

I-81

56275
80400

2000 ADT NO-BUILD
2025 ADT NO-BUILD

3525
5775

5650
9275

13575
22250

US 40

US 40

17000
27900

4700
7700

6000
9850

I-81

57800
82900

↓ TO WVA

SKETCH "3"

$\frac{43650}{59650}$

↑ TO PA

$\frac{4200}{6900}$

$\frac{4150}{6800}$

$\frac{12000}{19675}$

MAUGANS AVE

MAUGANS AVE

$\frac{18350}{30075}$

$\frac{6600}{10825}$

$\frac{13000}{21325}$

I-81

I-81

$\frac{54900}{78100}$

$\frac{2000 \text{ ADT NO-BUILD}}{2025 \text{ ADT NO-BUILD}}$

$\frac{400}{650}$

$\frac{1150}{1875}$

$\frac{4500}{7375}$

MAUGANSVILLE RD

MAUGANSVILLE RD

$\frac{5250}{8600}$

X

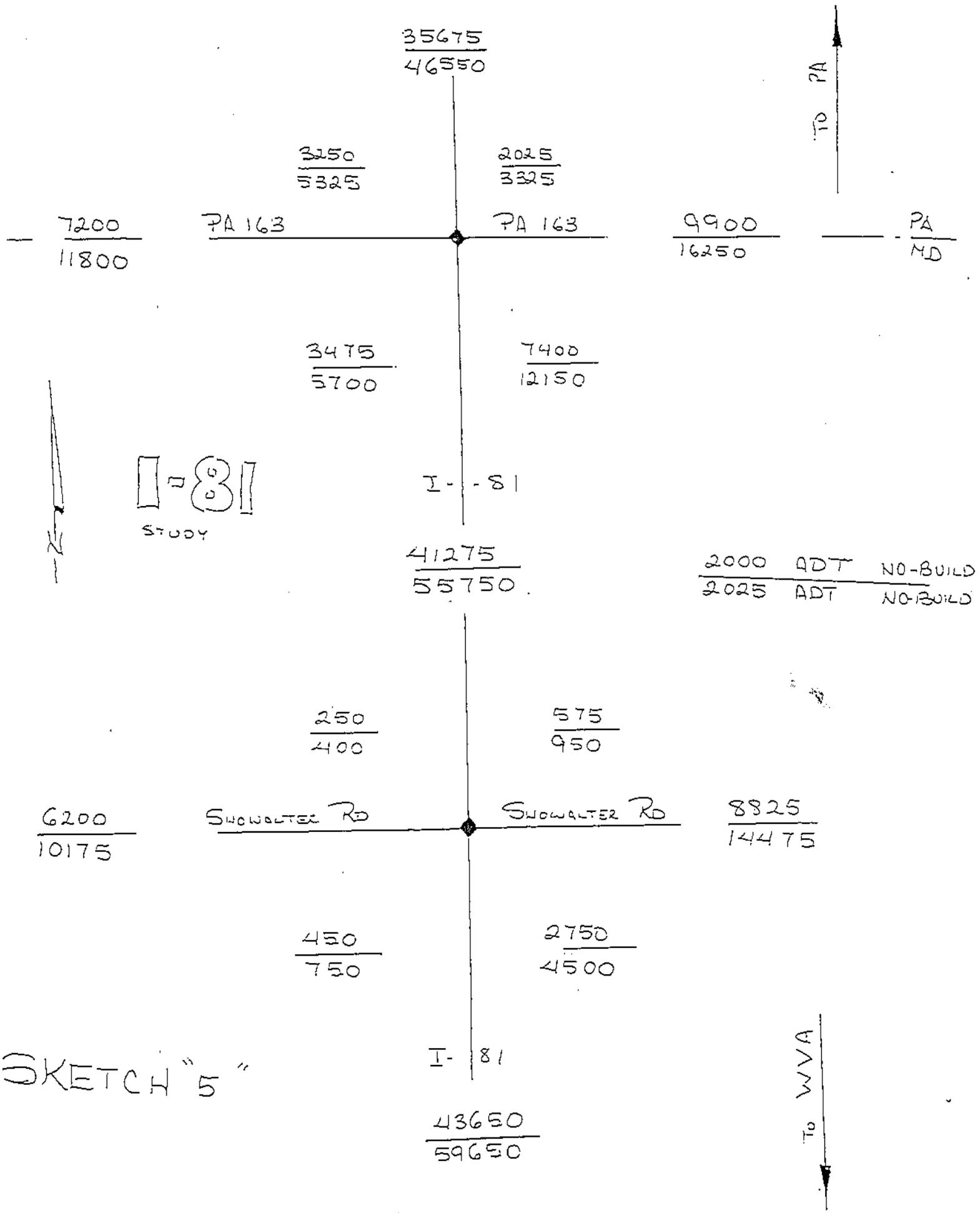
X

I-81

$\frac{53350}{75575}$

↓ TO WVA

SKETCH "4"



I-81
STUDY

SKETCH "5"

Table 2: I-81 Interchange Level of Service

Interchange Segment		HCS Analysis Type	Level of Service	
			2000	2025
From	To		AM [PM]	AM [PM]
EXIT 6: US 40 (cont.)				
I-81 - Southbound	US 40 - Westbound	Diverge	B [B]	D [D]
US 40 - Westbound	I-81 - Southbound	Type A Weave	B [B]	C [C]
I-81 - Southbound	US 40 - Eastbound			
US 40 - Eastbound	I-81 - Southbound	Merge	B [B]	C [D]
EXIT 7: MD 58				
I-81 - Northbound	MD 58 - Eastbound	Diverge	B [C]	C [E]
I-81 - Northbound	MD 58 - Westbound	Diverge	B [B]	B [D]
MD 58	I-81 - Northbound	Merge	B [C]	C [E]
I-81 - Southbound	MD 58 - Westbound	Diverge	B [B]	D [D]
I-81 - Southbound	MD 58 - Eastbound	Diverge	B [B]	D [D]
MD 58	I-81 - Southbound	Merge	C [C]	D [D]
EXIT 8: MAUGANSVILLE ROAD				
Maugansville Road	I-81 - Northbound	Merge	B [C]	C [E]
I-81 - Southbound	Maugansville Road	Diverge	B [B]	C [C]
EXIT 9: MAUGANS AVENUE				
I-81 - Northbound	Maugans Avenue	Diverge	B [B]	B [C]
Maugans Avenue	I-81 - Northbound	Merge	A [B]	B [C]
I-81 - Southbound	Maugans Avenue	Diverge	B [B]	B [B]
Maugans Avenue	I-81 - Southbound	Merge	B [B]	C [C]
EXIT 10: SHOWALTER ROAD				
I-81 - Northbound	Showalter Road - Eastbound	Diverge	B [B]	B [D]
Showalter Road - Eastbound	I-81 - Northbound	Type A Weave	A [A]	A [B]
I-81 - Northbound	Showalter Road - Westbound			
Showalter Road - Westbound	I-81 - Northbound	Merge	B [B]	B [D]
I-81 - Southbound	Showalter Road - Westbound	Diverge	B [B]	C [B]
Showalter Road - Westbound	I-81 - Southbound	Type A Weave	A [A]	B [B]
I-81 - Southbound	Showalter Road - Eastbound			
Showalter Road - Eastbound	I-81 - Southbound	Merge	B [B]	C [C]
PA EXIT 1: PA 163				
I-81 - Northbound	PA 163	Diverge	A [B]	A [C]
PA 163	I-81 - Northbound	Merge	A [A]	A [B]
I-81 - Southbound	PA 163	Diverge	A [A]	B [B]
PA 163	I-81 - Southbound	Merge	B [B]	C [B]



Table 2: I-81 Interchange Level of Service

Interchange Segment		HCS Analysis Type	Level of Service	
			2000	2025
From	To		AM [PM]	AM [PM]
EXIT 1: MD 68 / MD 63				
I-81 - Northbound	MD 68 / MD 63	Diverge	B [B]	C [C]
MD 68 / MD 63	I-81 - Northbound	Merge	B [B]	C [B]
I-81 - Southbound	MD 68 / MD 63	Diverge	A [B]	A [C]
MD 68 / MD 63	I-81 - Southbound	Merge	B [C]	B [D]
EXIT 2: US 11				
I-81 - Northbound	US 11	Diverge	B [B]	C [B]
US 11 - Westbound	I-81 - Northbound	Merge	B [B]	C [C]
US 11 - Eastbound	I-81 - Northbound	Merge	B [B]	D [C]
I-81 - Southbound	US 11	Diverge	A [C]	B [D]
US 11	I-81 - Southbound	Merge	A [B]	B [D]
EXIT 3: I-70				
I-81 - Northbound	I-81 - Northbound CD Lane	Diverge	A [A]	A [A]
I-81 - Northbound CD Lane	I-70 - Eastbound	Diverge	A [A]	A [B]
I-70 Eastbound	I-81 - Northbound CD Lane	Type A Weave	A [A]	C [C]
I-81 - Northbound CD Lane	I-70 - Westbound			
I-70 - Westbound	I-81 - Northbound CD Lane	Merge	B [B]	C [C]
I-81 - Northbound CD Lane	I-81 - Northbound	Merge	B [B]	D [D]
I-81 - Southbound	I-81 - Southbound CD Lane	Type B Weave	B [C]	C [F]
I-81 - Southbound CD Lane	I-70 - Westbound	Diverge	B [B]	C [C]
I-70 - Westbound	I-81 - Southbound CD Lane	Type A Weave	B [D]	D [F]
I-81 - Southbound CD Lane	I-70 - Eastbound			
I-70 - Eastbound	I-81 - Southbound CD Lane	Merge	B [B]	B [C]
I-81 - Southbound CD Lane	I-81 - Southbound	Merge	B [C]	B [E]
EXIT 5: HALFWAY BLVD.				
I-81 - Northbound	Halfway Blvd. - Eastbound	Diverge	B [B]	C [C]
I-81 - Northbound	Halfway Blvd. - Westbound	Diverge	B [B]	B [B]
Halfway Blvd.	I-81 - Northbound	Merge	B [C]	C [D]
I-81 - Southbound	Halfway Blvd. - Westbound	Diverge	B [B]	B [C]
I-81 - Southbound	Halfway Blvd. - Eastbound	Diverge	B [B]	B [C]
Halfway Blvd.	I-81 - Southbound	Type B Weave	B [C]	C [F]
EXIT 6: US 40				
I-81 - Northbound	US 40 - Eastbound	Diverge	B [C]	C [D]
US 40 - Eastbound	I-81 - Northbound	Type A Weave	A [B]	B [C]
I-81 - Northbound	US 40 - Westbound			
US 40 - Westbound	I-81 - Northbound	Merge	B [C]	C [E]



Table 3: I-81 Mainline Freeway Level of Service

Direction	Segment		Level of Service	
			2000	2025
			AM [PM]	AM [PM]
	From	To		
NB	West Virginia State Line	MD 68 / MD 63 Off-Ramp	B [B]	C [C]
NB	MD 68 / MD 63 On-Ramp	US 11 Off-Ramp	B [B]	C [C]
NB	US 11 On-Ramp	I-70 Off-Ramp	B [B]	D [C]
NB	I-70 On-Ramp	Halfway Blvd - Eastbound Off-Ramp	B [C]	E [D]
NB	Halfway Blvd On-Ramp	US 40 - Eastbound Off-Ramp	B [C]	C [E]
NB	US 40 - Westbound On-Ramp	MD 58 - Eastbound Off-Ramp	B [C]	C [E]
NB	MD 58 On-Ramp	Maugansville Road On-Ramp	B [C]	C [D]
NB	Maugansville Road On-Ramp	Maugans Avenue Off-Ramp	B [C]	C [E]
NB	Maugans Avenue On-Ramp	Showalter Road - Eastbound Off-Ramp	A [B]	B [D]
NB	Showalter Road - Westbound On-Ramp	PA 163 Off-Ramp	A [B]	B [C]
NB	PA 163 On-Ramp	Northward	A [B]	A [C]
SB	North	PA 163 Off-Ramp	B [A]	C [B]
SB	PA 163 On-Ramp	Showalter Road - Westbound Off-Ramp	B [B]	C [B]
SB	Showalter Road - Eastbound On-Ramp	Maugans Avenue Off-Ramp	B [B]	C [B]
SB	Maugans Avenue On-Ramp	Maugansville Road Off-Ramp	B [B]	D [D]
SB	Maugansville Road Off-Ramp	MD 58 - Westbound Off-Ramp	B [B]	D [D]
SB	MD 58 On-Ramp	US 40 - Westbound Off-Ramp	B [C]	D [D]
SB	US 40 - Eastbound On-Ramp	Halfway Blvd - Westbound Off-Ramp	B [C]	C [D]
SB	I-70 On-Ramp	US 11 - Off-Ramp	B [C]	B [E]
SB	US 11 - On-Ramp	MD 68 / MD 63 Off-Ramp	A [B]	B [D]
SB	MD 68 / MD 63 On-Ramp	West Virginia State Line	A [B]	B [D]



I-81 Truck Percentages

	% DHV			% ADT		
	NB	SB	Total	NB	SB	Total
West Virginia to MD 68/63.	37%	27%	32%	34%	28%	31%
MD 68/ 63 to US 11	30%	23%	27%	37%	29%	33%
US 11 to I-70	26%	20%	23%	32%	24%	28%
I-70 to Halfway Blvd.	30%	27%	29%	36%	31%	33%
Halfway Blvd. to US 40	25%	27%	26%	32%	22%	27%
US 40 to MD 58	25%	28%	27%	35%	34%	34%
MD 58 to Maugansville Rd.	28%	28%	28%	36%	34%	35%
Maugansville Road to Maugans Ave.	27%	33%	30%	40%	38%	39%
Maugans Avenue to Showalter Rd.	27%	35%	31%	40%	38%	39%
Showalter Rd. to PA 163	26%	35%	31%	40%	37%	39%
Total			28%			34%

FIGURE "3"

APPENDIX C

Environmental Overview

Environmental Overview

An environmental inventory was completed to identify the socio-economic, cultural, and natural environment resources within the I-81 project area.

Socio-Economic Environment

The proposed project is consistent with the Comprehensive Plan for Washington County adopted in 1981 and subsequent amendments to the plan. The I-81 project area is located within the Hagerstown Regional Growth Area and the Priority Funding Area (PFA) designated by Washington County.

Land use within the study corridor is primarily commercial and industrial along the entire length of I-81, interspersed with agricultural, institutional and residential use. Deciduous forest is found along I-81 in the southern portion of the project area. Industrial and commercial developments occur on the eastern side of I-81 and along the interchanges. Industrial facilities include Interstate Industrial Park on MD 68 (Exit 1) and Washington Business Park prior to US 40 (Exit 6). The Washington County Business Air Park and Regional Airport are situated adjacent to I-81 and north of Showalter Road in the northern portion of the project area. Agriculture occurs in patches along I-81 on the western side. Residential areas include Williamsport, Halfway, Lakeside Park Mobile Home Park, Hagerstown, and Maugansville. Schools include Springfield M.S., Williamsport E.S., Williamsport H.S., and Hickory E.S.

The Chesapeake and Ohio (C & O) National Historical Park, located in the southern portion of the project area, is the only park identified along I-81. The C & O Canal and Trail run adjacent to the Potomac River from Washington D.C. to Cumberland, Maryland.

The number of residential relocations and business displacements, along with the amount of right-of-way required, will be determined once detailed alternatives are developed. According to United States Bureau of the Census summary data (1990) for Washington County, residents in the study area are predominantly Caucasian and above the poverty level for persons and families. Additional steps will be taken throughout the study to identify and avoid disproportionately high and adverse effects on minority and low-income communities.

Cultural Environment

The SHA has identified at least three historic standing structures in the project area. These include the C & O National Historical Park, listed on the National Register of Historic Places, and two barns that may be considered eligible for the National Register of Historic Places. Coordination has been initiated with the Maryland Historical Trust (MHT) to obtain their concurrence that these three resources are on or eligible for the National Register. SHA is also seeking concurrence on the assessment that undisturbed parts of the project area are considered likely to contain significant historic and prehistoric archeological resources.

Natural Environment

Coordination with US FWS indicates that no federally proposed or listed endangered or threatened species are known to exist within the project area. Coordination with MD DNR indicates that although there are no state listed rare, threatened, or endangered animal or plant species within the immediate project area, there are records for species of state concern that are known to have occurred within the general project area. These include several State threatened or endangered animal species, mainly associated with tributaries to the Conococheague, and a state endangered and two state threatened plant species may occur along the shoreline area of the Potomac. In addition, forest areas adjacent to I-81 are said to contain Forest Interior Dwelling Bird Habitat. Conservation of this habitat is strongly encouraged by DNR. Finally, the Conococheague and its tributaries have been identified as priority streams for rare freshwater mussel inventory work, and have a high likelihood of providing freshwater mussel habitat. Maintenance of water quality is crucial to the existence of these mussels.

Wetland corridor identification is underway. Review of National Wetland Inventory (NWI) wetland maps and preliminary field investigations in July 2001 identified palustrine, forested wetlands in the northeastern quadrant of the I-70 interchange and palustrine emergent and forested wetlands in the northwestern quadrant. Smaller palustrine forested emergent and/or scrub shrub wetlands exist in the northern section of the project, north of MD 68, north of US 11, north of US 40, and within the MD 58 cloverleaf.

The northern portion of I-81 crosses Toms Run, Rush Run, and an unnamed tributary to Conococheague Creek. I-81 crosses Semple Run, an unnamed tributary to Semple Run, an unnamed tributary to the Conococheague, and an unnamed tributary to the Potomac River further to the south. I-81 crosses the mainstream of the Potomac River below Williamsport, south of the confluence.

The Conococheague and its tributaries are designated as Use IV-P, recreational trout waters including a public drinking water supply. The Potomac River mainstem and any tributaries flowing directly into the Potomac River within the study area are designated as Use I-P, for water contact recreation and the protection of aquatic life including a public drinking water supply. Generally, no in-stream work is permitted in Use I streams during the period of March 1 through June 15, inclusive, during any year. Likewise, in-stream work is prohibited in Use IV streams during the period of March 1 through May 31, inclusive during any year.

Based on a review of the Federal Emergency Management Agency (FEMA) mapping for Washington County, FEMA designated 100-year floodplains associated with several unnamed tributaries to Conococheague Creek and the Potomac River occur within the I-81 study area.